Encoding of guideline I: Clinical Algorithm

Presented by:
Martha Michel, PhD
Susana Martins, MD MSc
Samson Tu, MS

Outline

- Controlled Vocabulary and Classes (how to add them)
- Building expressions
- Discuss goals, eligibility, patient characteristics, and testing tool!
- Exercise (~1 hour)

Available from previous sessions

- Formal statements from ATPIII guidelines
- Delineation of boundaries, scenarios in which the DSS will be initiated.

Goals of this session

- Understand controlled vocabulary and what is available
- To encode a collection of diseases, ICD codes, and labs
- To encode patient risk characteristics, goals, authors, and other management guideline items
- To increase comfort and ease in navigating Protégé

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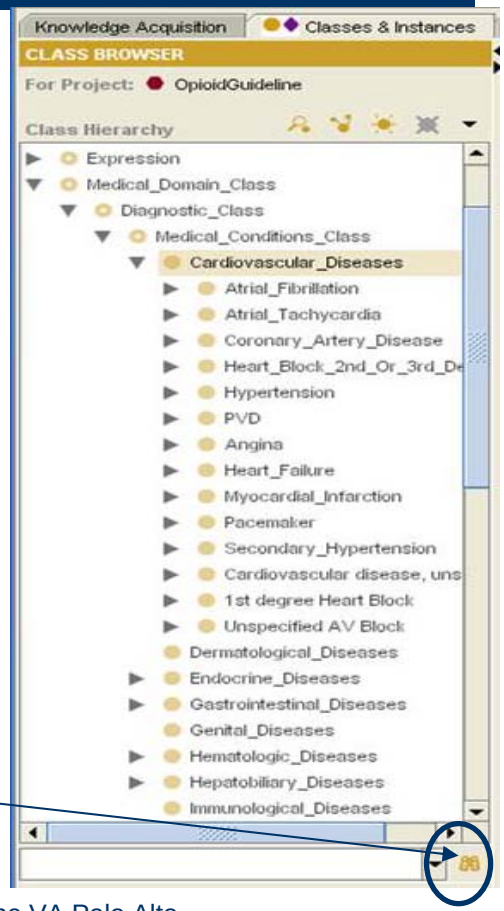
Controlled vocabulary and how it fits into Protege

- Controlled vocabulary are structured ways of organizing information about a domain in a hierarchical format
  - ICD 9 codes (disease codes)
  - LOINC codes (laboratory codes)
  - CPT codes (procedure codes)
- We will primarily deal with ICD9 and LOINC today

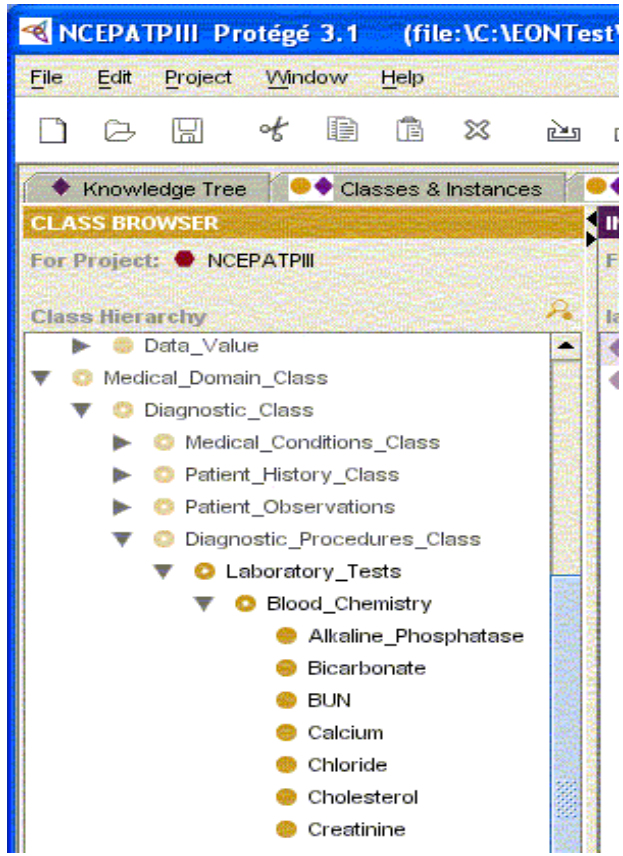
Modeling Classes

- There are certain ways of modeling that are inherent from the EON guideline model. Others are more flexible.
- EX. ICD9 codes go in Medical Domain Class →Diagnostic Class → Medical Conditions Class
- Within that structure you have some flexibility
- Hint: don't forget about the binoculars for searching and use * as a wild card



Adding Classes for Lab tests

- To add lab tests go to Medical_Domain_Class→ Diagnostic_Procedures_Class →Laboratory_Tests



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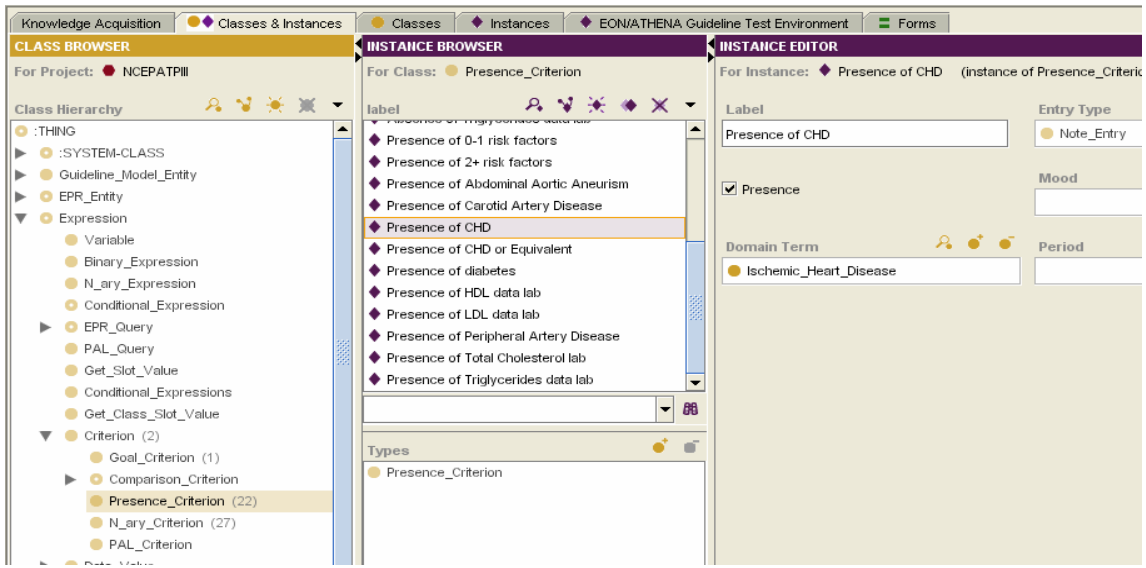
Building Expression Criteria

- Expressions are used to create logical statements so you can reason in Protégé
- 3 types of criteria (for our purposes) will be used to build expressions.
  - Presence
  - Numeric term and General comparison
  - N-ary

Presence criteria

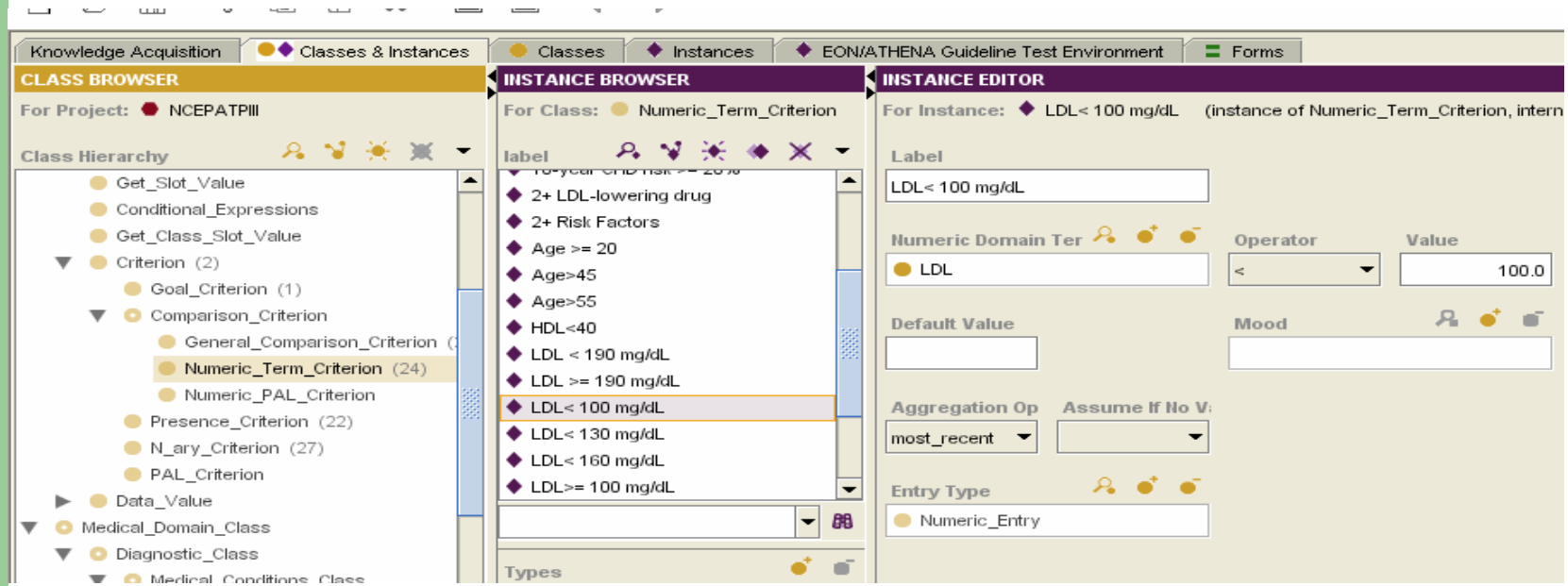
Asks the system if a certain condition (drug, disease, even expression) is present (or absent)

Ex: Presence of CHD



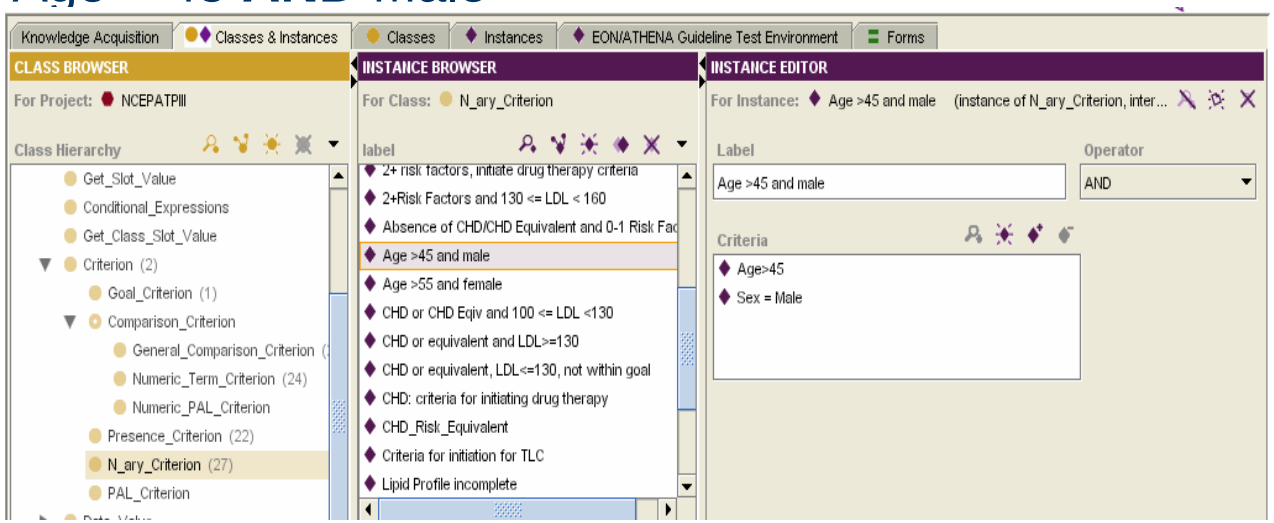
Numeric criteria

- Criteria that uses numeric comparisons
- Ex: LDL<100 mg/dL



N-ary criteria

- N-ary combines different types expressions by using **AND** or **OR** or **NOT**.
- Reminder: **AND** - If all criteria are met, expression is true
  OR – If one of the criteria is met, the expression is true.
- Ex: Age < 45 **AND** Male



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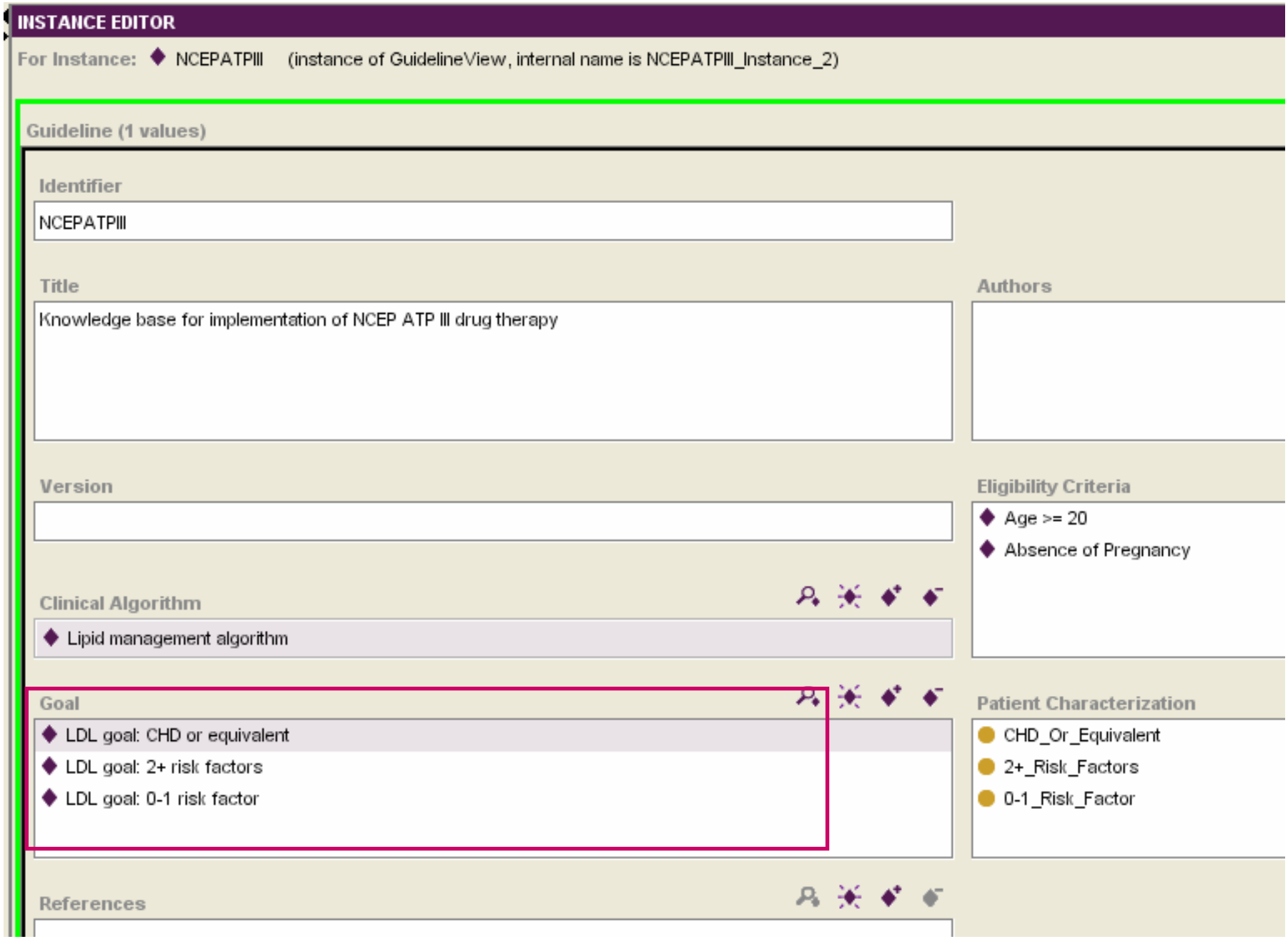

INSTANCE EDITOR
For Instance: NCEPATPIII (instance of GuidelineView, internal name is NCEPATPIII_Instance_2)
Guideline (1 values)
Identifier
NCEPATPIII
Title
Knowledge base for implementation of NCEP ATP III drug therapy
Authors
Version
Eligibility Criteria
Age >= 20
Absence of Pregnancy
Clinical Algorithm
Lipid management algorithm
Goal
LDL goal: CHD or equivalent
LDL goal: 2+ risk factors
LDL goal: 0-1 risk factor
Patient Characterization
CHD_Or_Equivalent
2+_Risk_Factors
0-1_Risk_Factor
References

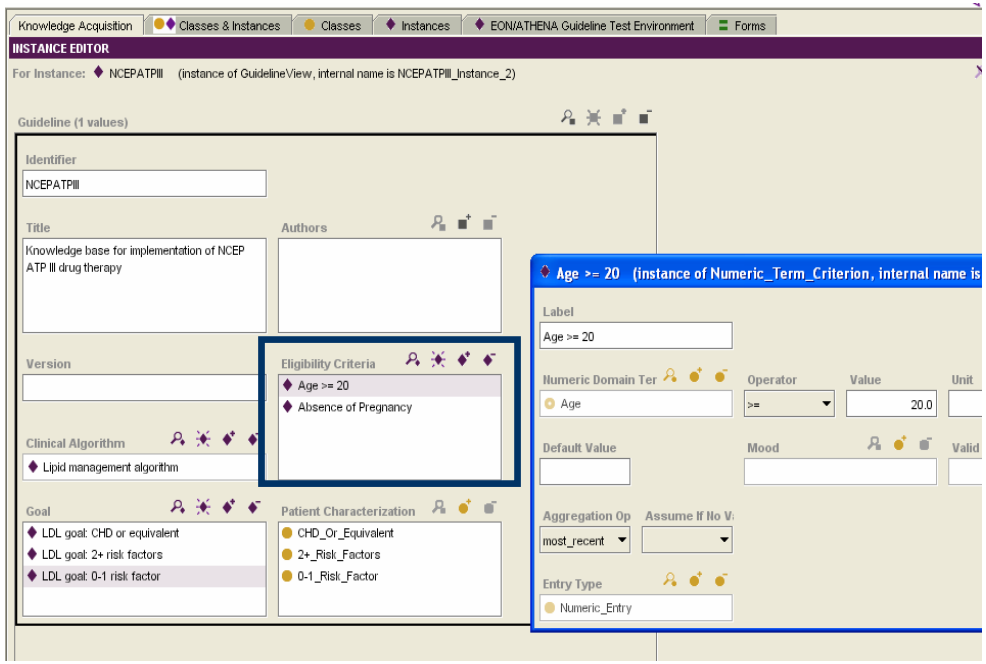
Adding goals

- Goals are defined within the guideline (in our case different LDL goals based on different risk factors)
- The goals should be mutually exclusive (one patient – one goal)

Eligibility criteria

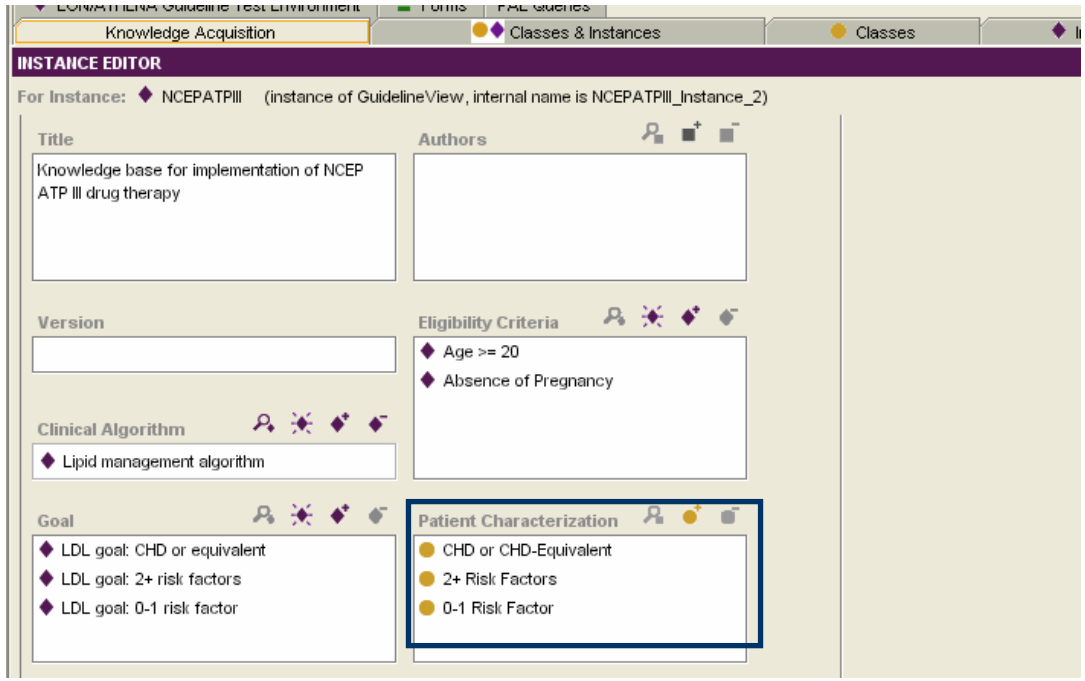
- Used to determine whether a patient is eligible for knowledge base

Ex: <20 years are not eligible for ATPIII



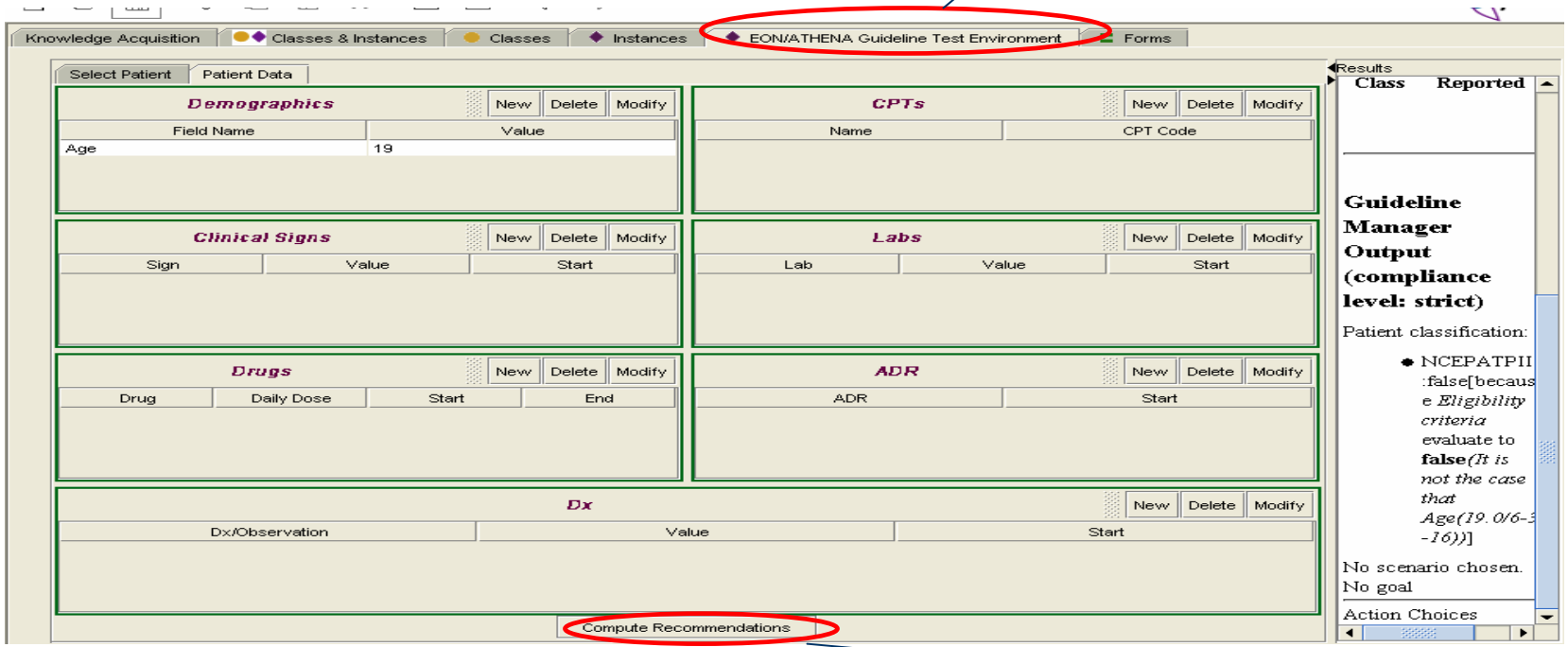
Patient Characterizations

Patient characterizations are abstractions of a patient case that can be used to display recommendations on the GUI.



Testing your expressions

Test environment tab



Click to submit pt data and compute

Workshop activity

- Add building blocks to Knowledge base.
- Add Eligibility Criteria
- Add Goals
- Test one of your eligibility criteria and goals if you have time.
- Please get into pairs and we'll get started.